

Application No.: 09/965417

Case No.: 56233US002

Remarks

This communication is in response to the Office Action mailed November 1, 2004. Claims 1 to 23 are pending. The Specification has been amended, at page 22, line 23, to identify a co-pending application by a serial number.

§ 112 Rejections

The Examiner has rejected claims 1-23 of the present application under 35 USC § 112, first paragraph, as failing to comply with the written description requirement. In particular, the Applicants' most recent Amendment was alleged to introduce subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors, at the time the application was filed, had possession of the claimed invention. The subject matter at issue was the Applicants' recitation that the rotator element is configured and arranged to rotate the polarization of the light by a "fixed angle." The Examiner has required that the Applicants point out exactly where support exists in the specification as filed for the aspect of "fixed."

The Applicants respectfully traverse this rejection. The concept of polarization rotation by a fixed angle of at least 5 degrees is fully supported by the specification as filed. For example, the specification states at page 24, lines 14 – page 25, line 5:

The polarization rotator element is configured to rotate light exiting the polarizer element by a desired angle. This film can receive unpolarized light and transmit polarized light with the plane of polarization rotated by the desired angle from the polarization axis of the polarizer element 202. As an example, a reflective polarizer element oriented in the machine (0°) or transverse (90°) direction can be combined with a 45° polarization rotator element to form an article that can be used in the LCD of Figure 1C while avoiding the waste associated with bias cutting the reflective polarizer at a 45° angle.

In another embodiment, the substrate 210 is a second polarizer element that has a polarization direction different than the polarization direction of polarizer element 202. The polarization rotator element is designed to rotate the polarization of light from the polarization axis of polarizer element 202 to align with the polarization axis of the second polarizer element 210, although, in some instances, the polarization rotator element may not fully align the light (e.g., the polarization rotator element may rotate the polarization by 30° for two polarizer elements with polarization axes that differ by 45°). As an example, polarizer element 202 can be a reflective polarizer element with a polarization axis of 0° and second polarizer element 210 is an absorbing polarizer element with a polarization axis of 90°. The polarization rotator element 204 is selected to rotate the

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polarization of light transmitted by the polarizer element 202 by 90° (or some other angle, if desired) to permit passage (only partial passage if the rotation angle is substantially different from 90°) of light through the second polarizer element 210. (emphasis added).

The specification also states at page 28, lines 3-9:

One such film would include a reflective polarizer element and a polarization rotator element that rotates the polarization of light transmitted by the reflective polarizer element to a direction that can be transmitted by the polarizer 904. In this embodiment, the reflective polarizer element of the film and the polarizer 904 do not need to have polarization axes in the same direction. Thus, the reflective polarizer element of the film can have a polarization axis at 0° or 90° and the polarizer can have a polarization axis at 45°. (emphasis added).

Thus, the specification teaches that at least some exemplary embodiments of the present disclosure are configured so that a polarization rotator element can rotate polarization of incident light by an angle needed for a direction of polarization to be collinear with a pass axis of a subsequent polarizer element. (See, e.g., Specification, p. 27, lines 18-20). Since a linear polarizer element transmits light polarized along a fixed axis, in such exemplary embodiments, the rotation of polarization needed to align the polarization with the pass axis of the polarizer would be rotation by a fixed angle. Therefore, the Applicants' amendments are fully supported by the specification as filed.

§ 103 Rejections

The Examiner has rejected claims 1-14, 21 and 22 under 35 USC § 103(a) as being unpatentable over British Patent Application 2,326,727 (hereinafter "'727 Application") in view of PCT Publication No. WO 98/04651 (hereinafter "PCT '651"). In addition, the Examiner has rejected claims 15-17, 20 and 23 under 35 USC § 103(a) as being unpatentable over the '727 Application in view of British Patent Application 2,324,881 (hereinafter "'881 Application") and PCT '651. The Applicants respectfully traverse these rejections.

Concerning 35 USC § 103(a) rejections, § 2141 of MPEP recognizes the following basic considerations that apply to obviousness rejections:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

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- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5 (Fed. Cir. 1986). (emphasis added).

MPEP § 2141.02 further specifies that a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention, as stated in *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

In evaluating obviousness, the Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. MPEP § 2142. Further, as set forth in MPEP § 2143:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure. *In re Vaek*, 947 F.2d 488 (Fed. Cir. 1991).

Furthermore, as stated in MPEP § 2143.01, if the proposed modification or combination of the prior art would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984).

With regard to the Examiner's rejection of claims 1-17 and 20-23 under 35 USC § 103(a) as being unpatentable over the '727 Application" in view of PCT '651, or in view of PCT '651 and the '881 application, the Applicants respectfully submit that it would not have been obvious to a person of ordinary skill in the art to modify the disclosure of the '727 Application, alone or in view of the cited references, to arrive at the invention as claimed.

The cited references, alone or in combination, do not teach or suggest all elements of the pending claims. The claims of the present application recite methods of making a film comprising at least the steps of: forming a first alignment layer on a surface of a polarizing element; disposing a liquid crystal material on the first alignment layer; and forming an aligned

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liquid crystal layer from the liquid crystal material to produce a polarization rotator element configured and arranged to rotate the polarization of at least a portion of the light that is transmitted by the polarizing element by a fixed angle of at least 5 degrees.

In contrast, the '727 Application is directed to a method of making a cell wall of a liquid crystal spatial light modulator ("SLM") and to a cell wall made by such a method. Such cell walls also include glass substrates and transparent electrodes. (See, e.g., the '727 Application at p. 11, lines 3-6). The electrodes are segmented to define pixels of the SLM. (The '727 Application at p. 16, lines 6-8, see also p. 17, lines 14-17). The liquid crystal layer (6) is configured so that its orientation (and, therefore, polarization rotation properties) can be altered pixel-by-pixel by application of an electrical current to the electrodes (4) and (10) provided on both sides of the SLM liquid crystal layer (6). Thus, the SLM is clearly intended to be used for generating images containing information, e.g., in a 3D display. (The '727 Application, p. 8, lines 9-12; p. 19, lines 9-10). The polarization rotation effects provided by the liquid crystal layer (6) of the '727 Application would normally be intended to vary and thus would not constitute rotation by "a fixed angle of at least 5 degrees" as now recited by the claims. Other references cited by the Examiner do not address the deficiencies of this disclosure.

The '881 Application is directed to a patterned optical element including a patterned polarization-rotating layer provided on a transparent glass substrate 10. (The '881 Application, p. 8, line 16). The patterned layer has regions that differ in the way they affect polarized light, which is useful with pixilated display screens. (The '881 Application, p. 1, lines 1-7). Fig. 4 of the '881 Application illustrates that the completed patterned element is provided with gaps 14' between the cured regions of the layer 14. The gaps 14' are characterized as "having no twisting effect on incident linear polarized light" and possessing "a different optical property to that of the remaining cured layer regions 14." (The '881 Application, p. 14, lines 6-12). The same is apparent from Fig. 7, which shows discrete regions of the layer 14 aligned with regions A and C of the LC display device, while the gaps are aligned with the regions B and D of the display device. Thus, any polarization rotation effect provided by the patterned layer (14) is not rotation by "a fixed angle of at least 5 degrees" as recited by the claims.

PCT '651 is directed to a combination of optical elements including at least one retardation film and at least one reflective polarizer. The Examiner has agreed (see e.g., Office

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Action mailed March 24, 2004) that this combination of optical elements does not include a polarization rotator element as claimed in the present application.

Furthermore, the Applicants respectfully submit that neither the references themselves nor the knowledge generally available to one of ordinary skill in the art provide any suggestion or motivation to modify the references or to combine reference teachings. The '727 Application is directed to SLMs, which are generally used to produce images. Contrary to the Examiner's suggestion in the November 1, 2004 Office Action, a person of ordinary skill in the art would not be motivated to modify an SLM to provide polarization rotation by a fixed angle. Such modification would render the SLM useless for its intended purpose.

In addition, a person of ordinary skill in the art would not be motivated to combine the '727 Application with PCT '651. The '727 Application is directed to methods of making cell walls of SLMs and to SLM cell walls, which include glass substrates and transparent electrodes. In contrast, PCT '651 discloses an optical retardation film that is disposed outside of a liquid crystal cell (element 18 of Figures 1a and 1b of PCT '651). The Applicants respectfully submit that one of skill in the art would not look to PCT '651, which is not directed to the formation of liquid crystal SLMs, to modify the SLM of the '727 Application. PCT '651 suggests using plastic film as a substrate for the retarders described herein. However, nowhere does it teach or suggest desirability of using flexible plastic film as a substrate in an SLM. There is also no indication that such could be accomplished with a reasonable expectation of success. Thus, at least for the foregoing reasons, the required motivation to modify or combine the references to establish a *prima facie* case of obviousness is not present.

Accordingly, the Applicants submit that claims 1, 15 and 21, as well as dependent claims 2-14, 16-20, 22 and 23, are patentable over the cited references and request withdrawal of the Examiner's rejections. In view of the above, it is submitted that the Application is in condition

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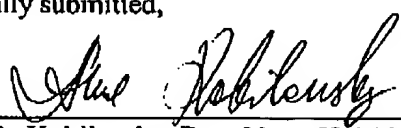
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for allowance. Reconsideration of the Application is respectfully requested and allowance of claims 1-23 at an early date is earnestly solicited.

Respectfully submitted,

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By:


Anna A. Kobilansky, Reg. No.: 53,146
Telephone No.: (651) 737-8345

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833